

Energy price reporting: The “basis” for price risk management

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London, Houston, Washington, Jersey City, Portland, Calgary, Santiago, Bogotá, Johannesburg, Dubai, Singapore, Tokyo, Beijing, Sydney, Moscow, Astana, Kiev and Berlin

Argus Media



Overview

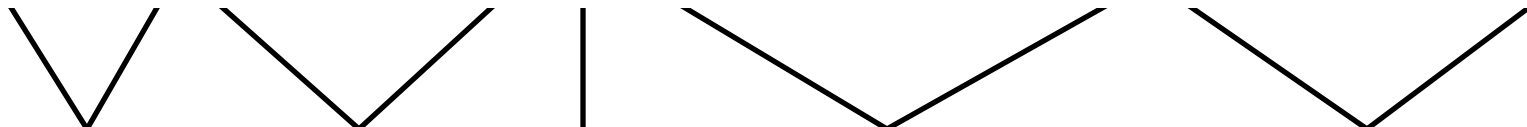
- What pricing services do
- The two-step hedge – basis and differential
- Different ways to assess differentials – benefits and liabilities
- Benchmark distortion issues
- Canadian energy markets in transition

What price reporting agencies do: Illuminate markets

- Collect data on deals done – in oil markets these are done at a differential to some benchmark
- Create indices based on the benchmarks
eg. Canadian WCS trades at a diff to WTI
 $WCS = WTI - 20.50$
- Add diff to benchmark to derive outright daily price
Eg. $WTI = \$110$
 $WCS = WTI - 20.50$
 $WCS = \$89.50$

Canadian prices

Pipeline Volume Weighted Indices												
Grade	Timing	Basis	Low/High (diff)	Low/High outright	Delta	Daily Wtd Avg (diff)	Daily Wtd Outright	Daily Deals	Daily Volume	Trade Month Wtd Avg	Monthly Deals	Monthly Volume
Syncrude (SYN)	Dec	Dec	-1.70/-1.45	83.16/83.41	-0.02	-1.56	83.30	7	9,434	-1.42	79	88,347
WCS	Dec	Dec	-14.70/-14.45	70.16/70.41	+0.22	-14.50	70.36	3	20,289	-14.66	88	91,907



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□	-1.70/-1.45	83.16/83.41	79	88,347
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Basis Differential

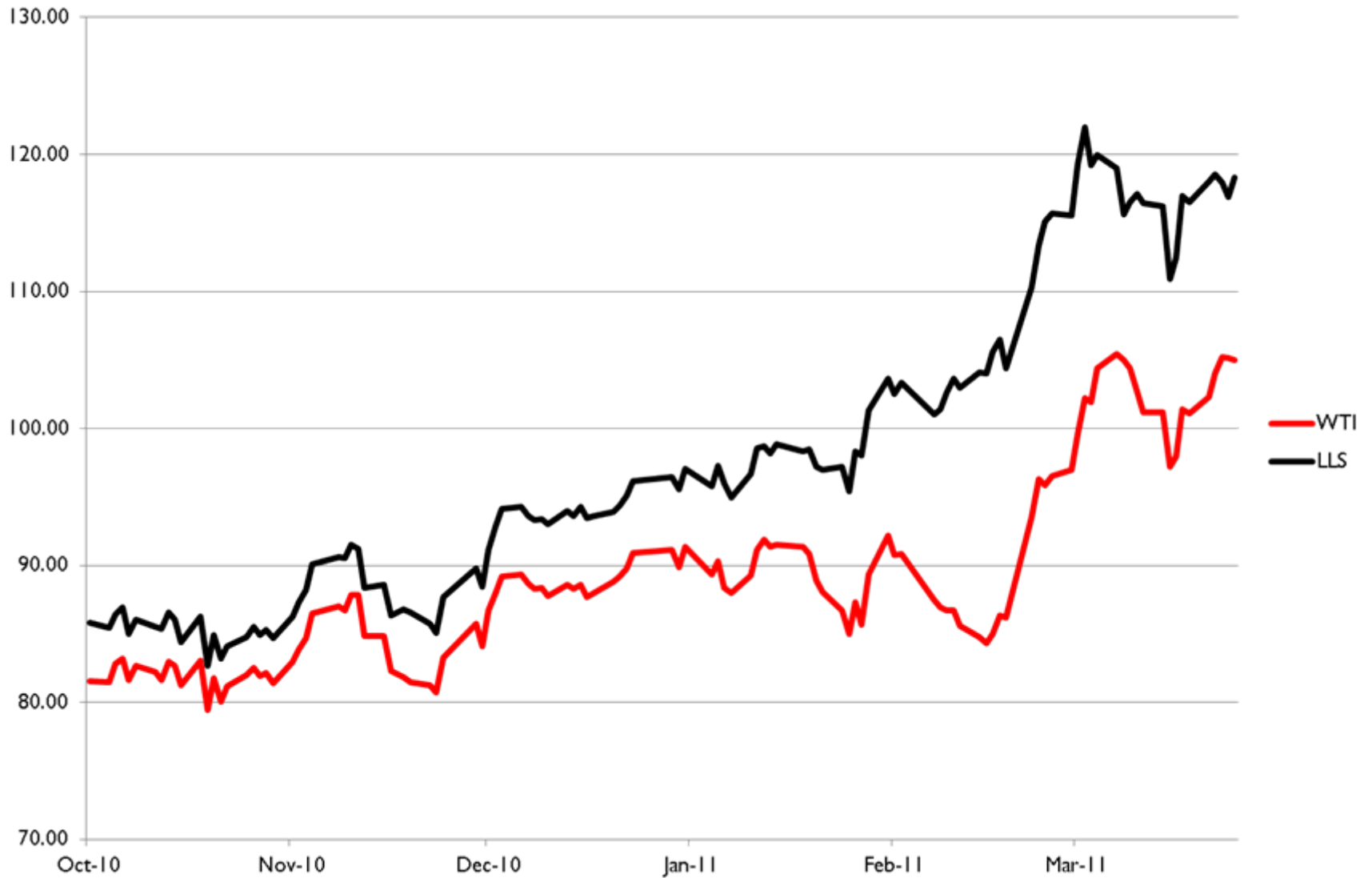
The two-part hedge example: $LLS = WTI + 14.00$

WTI	LLS diff to WTI
Hedge w/ Nymex crude futures	Hedge using a pricing service assessment

LLS vs WTI – where's the potential divergence?

	WTI	LLS
Timing	month ahead	month ahead
Quality	39 API/.40% sulf	37 API/.38% sulf
Modality	Pipeline	Pipeline
Location	Cushing, OK	St. James, LA

Benchmark dislocation



Choosing a benchmark



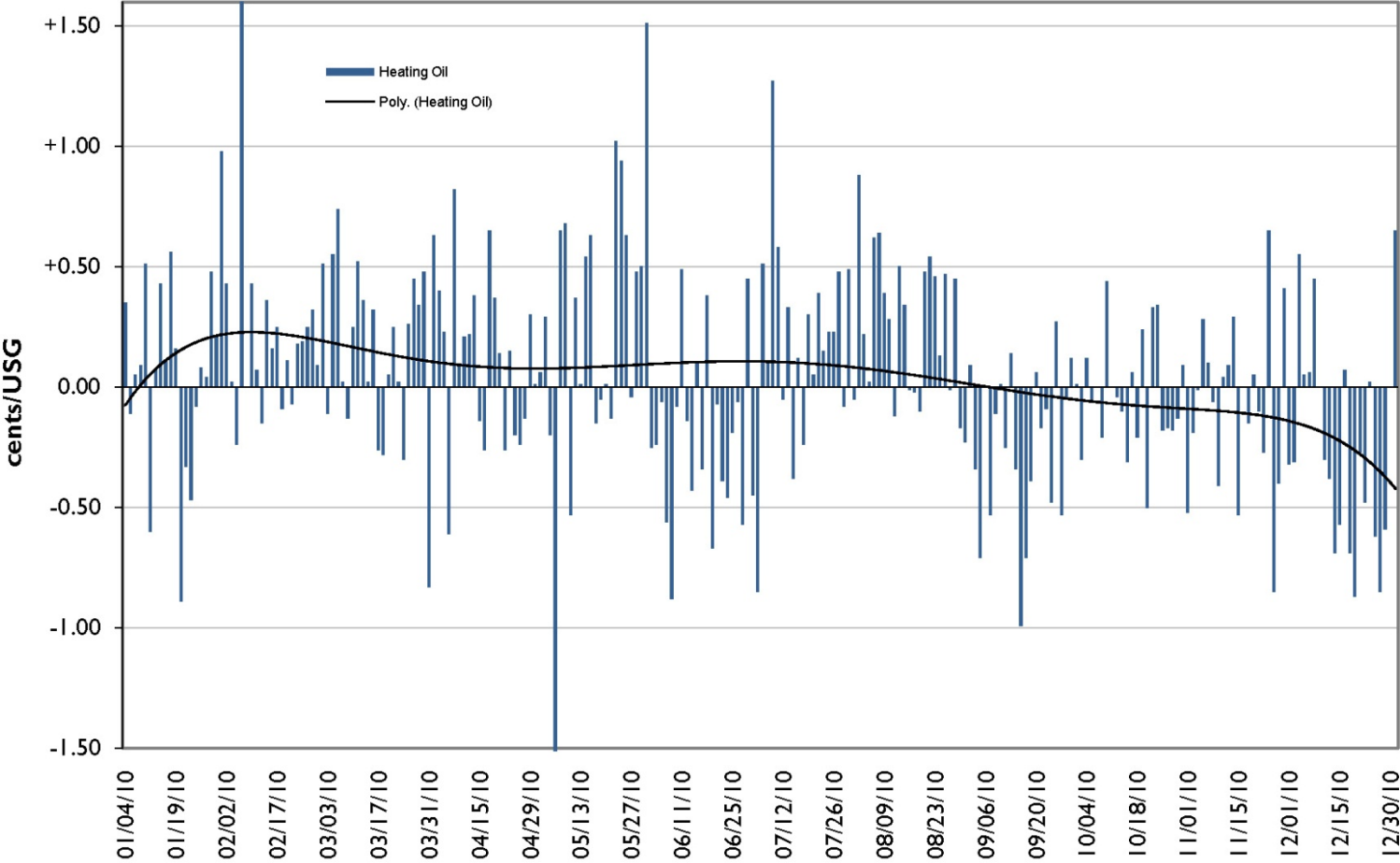
Choosing the benchmark:

- In US crude and products markets, Argus uses Nymex settlement
- Settles @ 2:30pm Eastern Time
- Useful because many trading shops use Trade At Settlement (TAS) mechanism to hedge the flat price
- Takes advantage of huge liquidity on Nymex crude, heating oil and gasoline futures
- With flat price hedged, traders look to a pricing service to set the day's market differential to the flat price benchmark

Not everyone on Nymex:

- Platts in 2009 shifted all flat price basis to their own market call
- This market price was determined at 3:15pm Eastern time – 45 minutes after the Nymex settlement
- Traders using this later benchmark were exposed to any movement in the flat price from 2:30 to 3:15.
- They could lay off that timing risk by using the Globex 3:15 flat price, but Globex is a much less liquid venue than Nymex futures

Heating Oil: Platts 3:15pm less Nymex 2:30pm settlement



Types of assessments/indices

Technique 1: Low/high of deals done all day

- Establishes a band of value that reflects full day's activity
- Argus uses in US clean products
- Advantage: reflects the full liquidity of the market
- Disadvantage: in a volatile market, the day's low and high may not be the best reflection of the main channel of trading values. The low and/or high could be outliers.

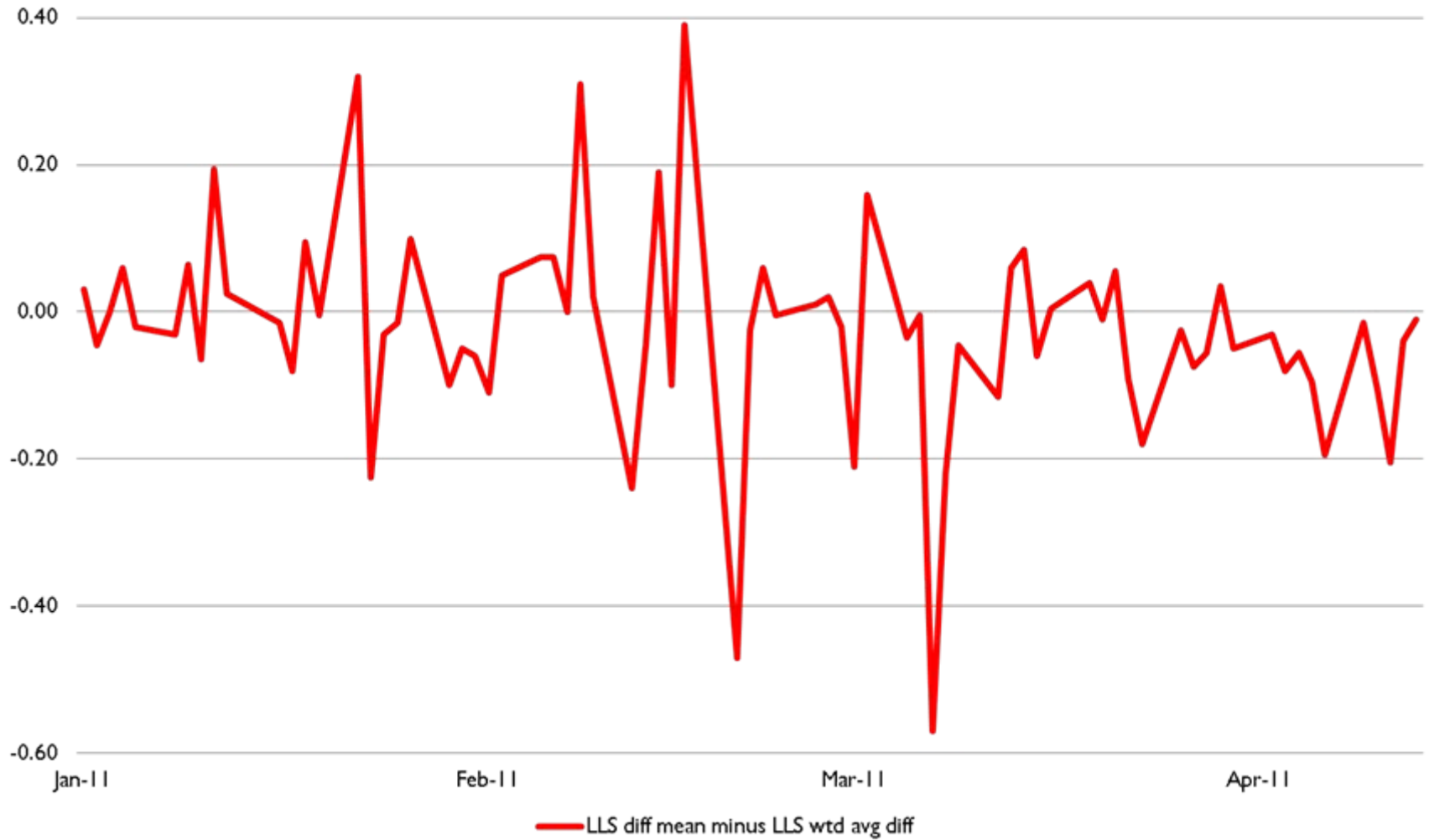
Technique 2: volume weighted average of deals done

- Argus uses in US/Canada crude market
- Advantages:
 - Reflects full day's activity,
 - big-volume deals count more heavily in setting the price,
 - the most difficult to distort

Disadvantages of volume weighted average

- Will often lag the end of day value of the market
- In illiquid markets, price agency must make an assessment when insufficient volume to do a weighted average
- In medium activity markets such as US crude, accuracy is dependent on having counterparty identities reported to allow throwing out duplicate deals
- In high-volume markets such as North American natural gas, impossible to throw out duplicate deals.

Assessment technique matters



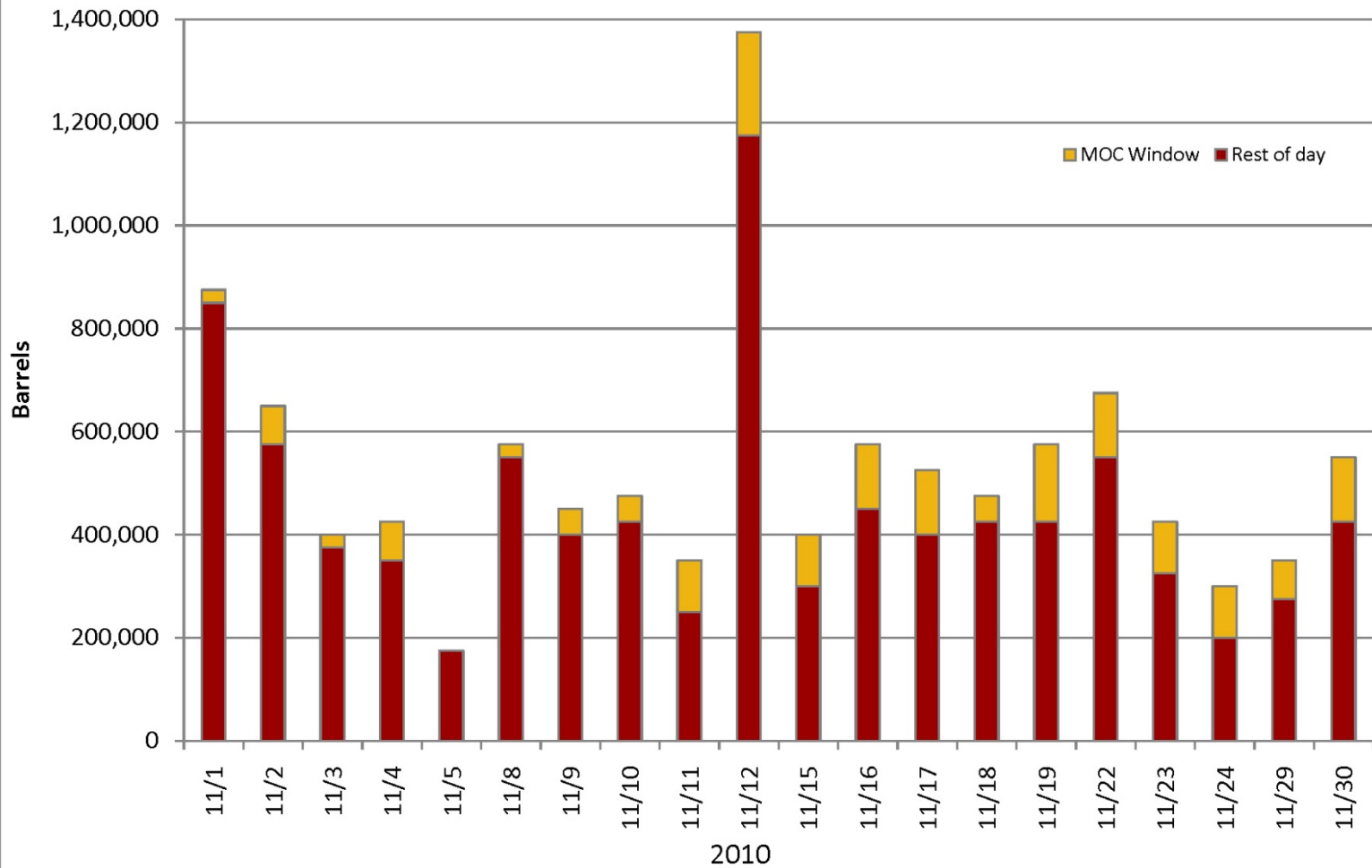
Technique 3: Market on close

- Platts method for crude and refined products in the US
- Establish a short pricing window at the end of the day. Only deals done in that window are considered in setting the day's price
- Advantage: provides a value at a moment in time, good for mark-to-market applications

Disadvantages of market on close

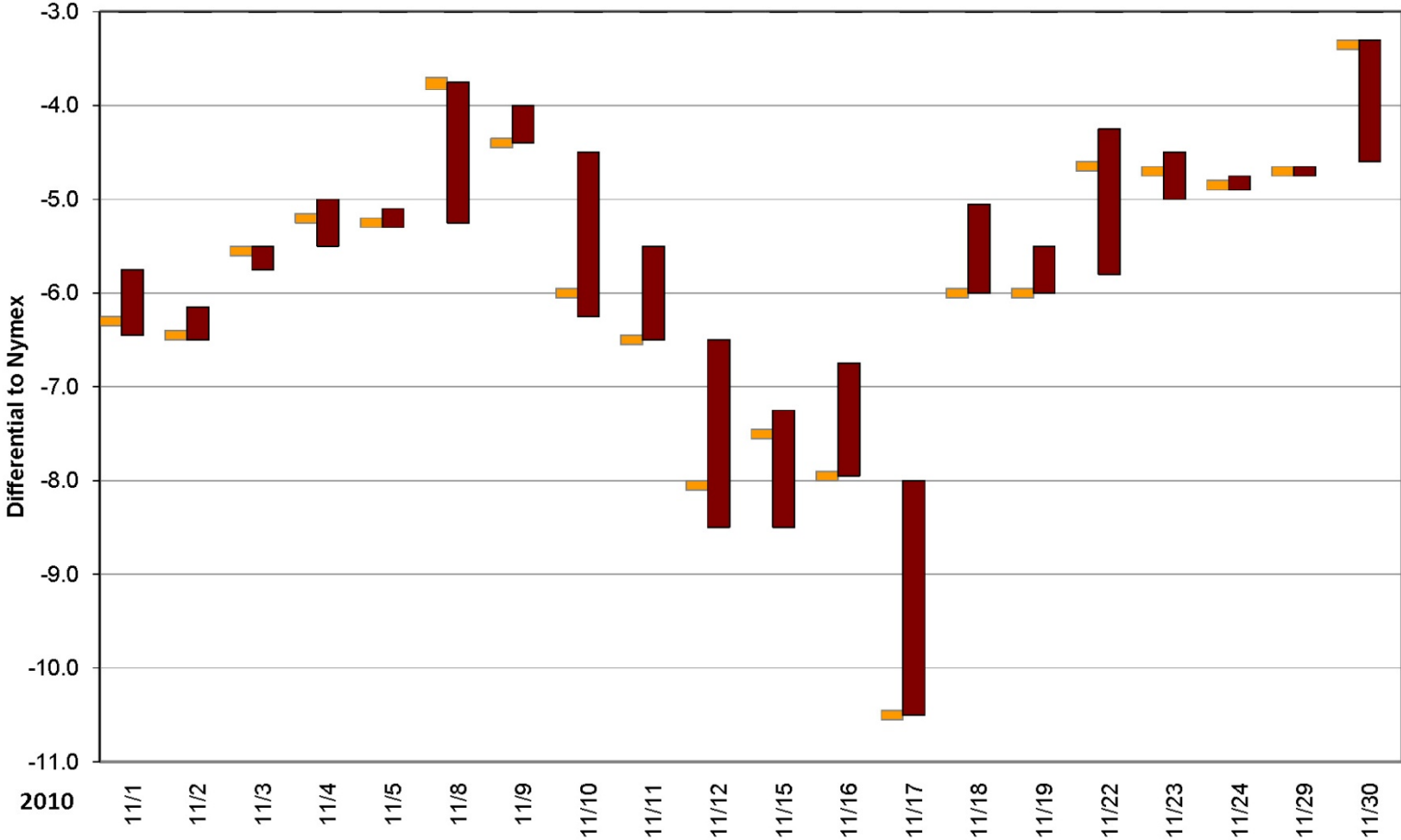
- Day's price is set by the last deal done
- Does not reflect the full liquidity of trade done
- Limits participation in influencing the day's price index
- Changes trade patterns – pushes trade into the window. The main reason to trade in the window is to set the daily price
- Often grabs a value at an illiquid period – problematic for physical markets because it does not reflect full day of trade

Colonial 87 M prompt cycle trading volume



87 M Gasoline Colonial prompt Cycle

- Argus low/high range (Entire Day)
- Platts low/high range (MOC, fixed less 3:15)



Technique 4: Time stamped assessment

- Reflects best confirmed bid and offer at a moment in time.
- Allows for “intelligent interpolation” by assessment agency – look at deals, bids, offers to determine market value.
- Argus uses this method to value swaps market forward curves (US clean prods, NGLs). Aligned w/ Nymex settlement time

Time stamped assessment

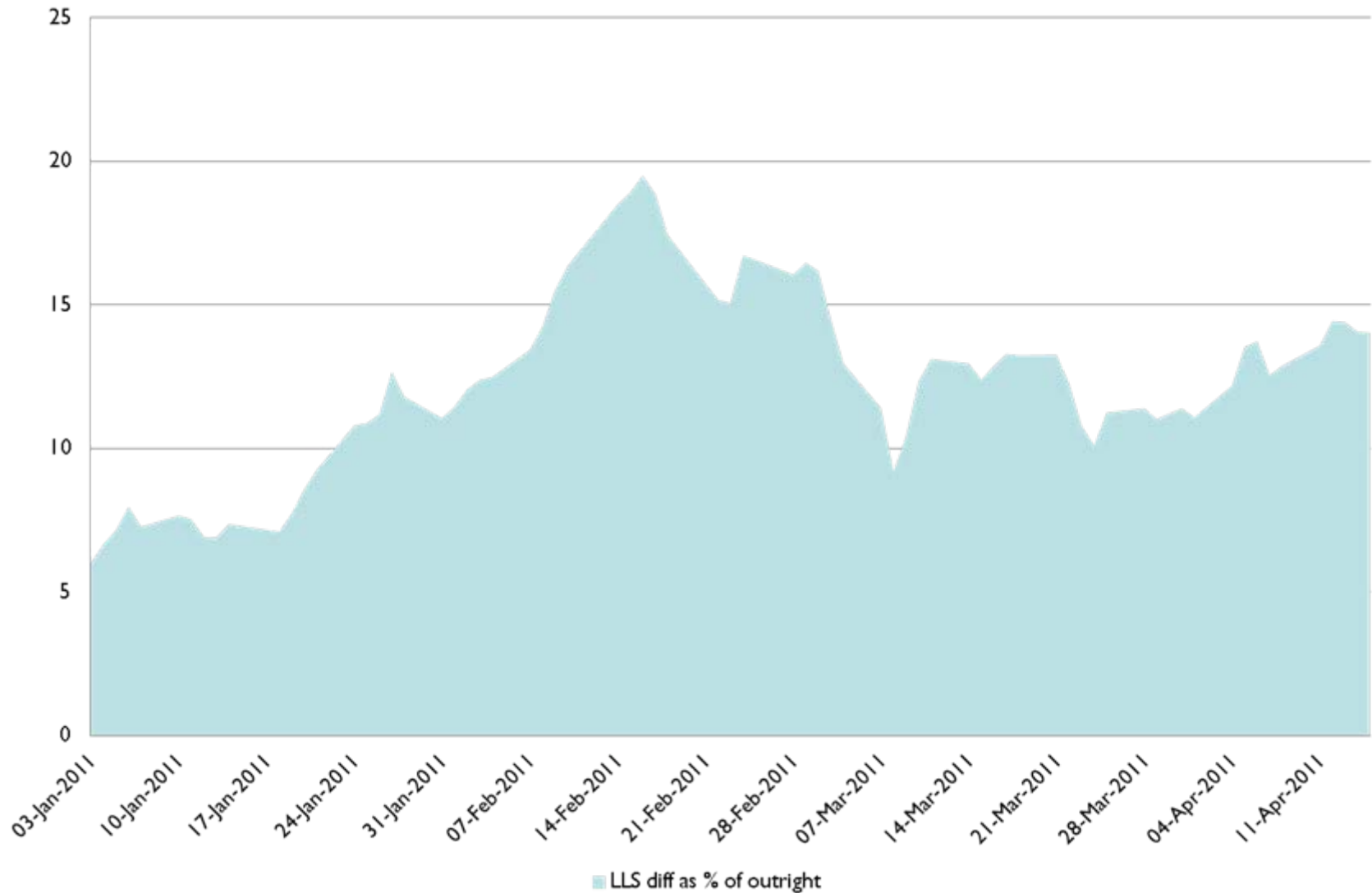
- Advantages:
 - allows risk managers to use published price curves in mark-to-market and value-at-risk (VAR) calculations.
 - Does not lag because it does not use deals, bids or offers from before time stamp
- Disadvantages:
 - Some see it as inappropriate for physical markets because it does not aggregate all the transactions of the day
 - Would require grabbing a value at an illiquid time of day

**Benchmark dislocation –
introducing more risk**

Climbing prices & benchmark dislocation



LLS diff has become a bigger % of its total price



Abandoning WTI

- US Gulf and Latin waterborne crude trading vs Brent rather than WTI
- Diff is to IPE Brent settlement price, since the flat price being hedged is Brent, not WTI
- Markets in transition from one benchmark to another have elevated price risk

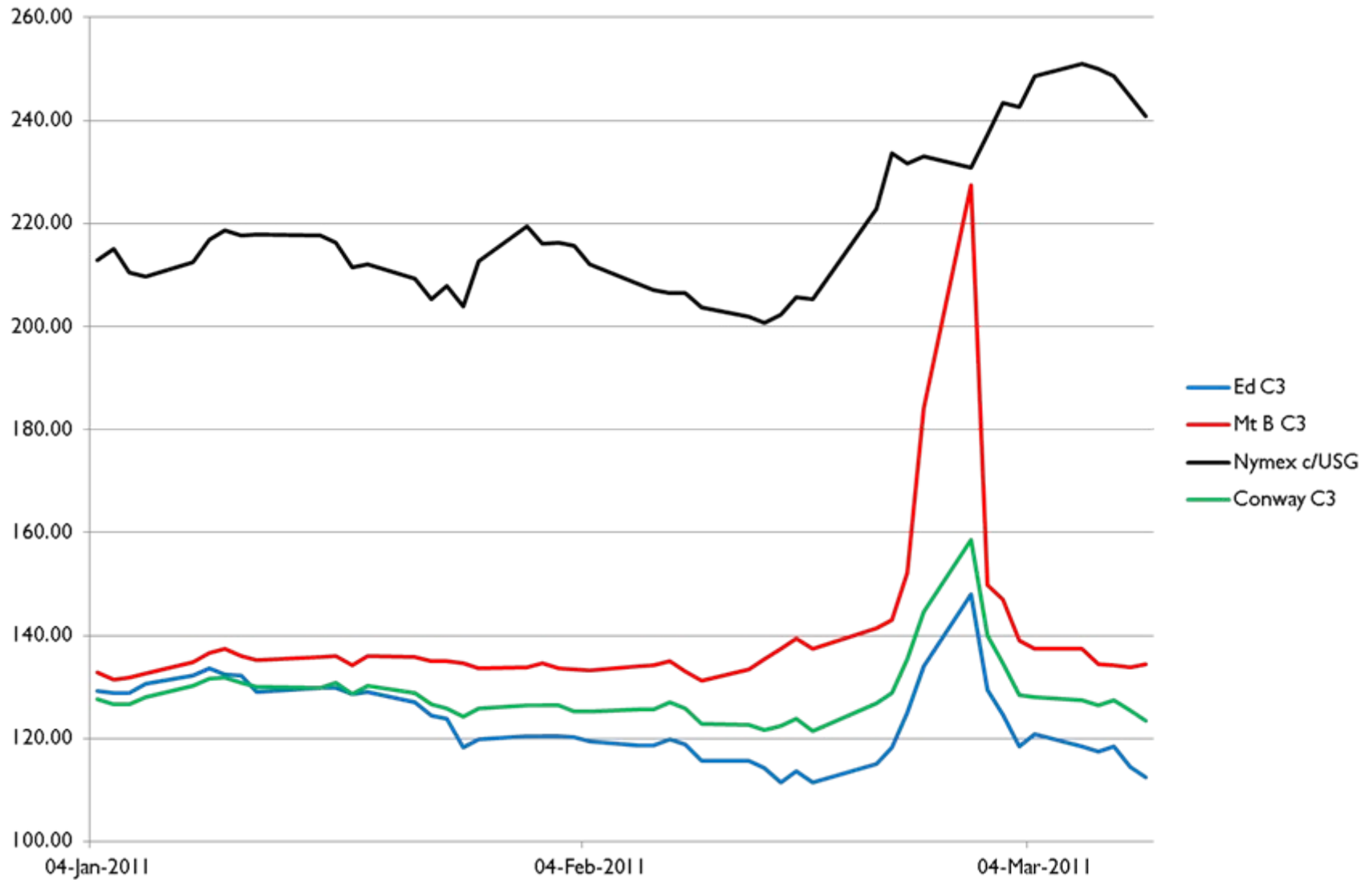
Canadian markets are in transition

- Crude markets moved from posted prices to differentials to WTI
- No dominant pricing index has emerged:
 - NGX/Shorcan
 - NetEnergy
 - Argus
- Trade perspective is still monthly, not daily
 - Deals done vs a month-average index price
 - Swaps markets impeded because potential traders cannot calculate a VAR on a daily basis

Argus addressing transitional risk in Canadian crude

- By reflecting all trade, not just trade done on a single broker
- Relies on cooperation of industry, as it did in US crude
- Potential to create conditions for better risk management tools

Does it really matter?



Thank you

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